

Claims

[c1] What is claimed is:

1. A method of manufacturing a fluid dynamic pressure bearing, the bearing comprising a shaft, a sleeve being formed so as to accommodate said shaft therein and to define a gap between the surface of said shaft and the inner surface of said sleeve, oil as lubricating fluid, a radial bearing section and/or a thrust bearing section including said gap filled with said oil, wherein:
said oil is stored in the first vacuum chamber, the pressure in which is lower than the atmospheric pressure;
said fluid dynamic pressure bearing is placed in the second vacuum chamber, the pressure in which is lower than the atmospheric pressure;
the interior of said first vacuum chamber communicates with the interior of said second vacuum chamber through a pipe, through which said oil is supplied from said first vacuum chamber to said fluid dynamic bearing placed in said second vacuum chamber;
the pressure in the first vacuum chamber is made lower than the pressure in the second vacuum chamber at the time of completing the pressure-reduction in those vacuum chambers; and

the oil is successively sent toward the area having higher pressure in a apparatus which comprises said first vacuum chamber, said second vacuum chamber and said pipe, thereby being supplied to the fluid dynamic pressure bearing.

- [c2] 2. A method of manufacturing a fluid dynamic pressure bearing, the bearing comprising a shaft, a sleeve being formed so as to accommodate said shaft therein and to define a gap between the surface of said shaft and the inner surface of said sleeve, oil as lubricating fluid, a radial bearing section and/or a thrust bearing section including said gap filled with said oil, wherein:
- said oil is stored in the first vacuum chamber, the pressure in which is lower than the atmospheric pressure;
 - said fluid dynamic pressure bearing is placed in the second vacuum chamber, the pressure in which is lower than the atmospheric pressure;
 - the interior of said first vacuum chamber communicates with the interior of said second vacuum chamber through a pipe, through which said oil is supplied from said first vacuum chamber to said fluid dynamic bearing placed in said second vacuum chamber;
 - the pressure in the first vacuum chamber is kept to be a pressure not more than the pressure in the second vacuum chamber; and

the oil is successively sent toward the area having higher pressure in a apparatus which comprises said first vacuum chamber, said second vacuum chamber and said pipe, thereby being supplied to the fluid dynamic pressure bearing.

[c3] 3. A manufacturing method of a fluid dynamic pressure bearing according to Claim 1, wherein a valve mechanism for sending the oil in said pipe toward the second vacuum chamber is disposed in the pipe.

[c4] 4. A manufacturing method of a fluid dynamic pressure bearing according to Claim 2, wherein a valve mechanism for sending the oil in said pipe toward the second vacuum chamber is disposed in the pipe.

[c5] 5. A manufacturing method of a fluid dynamic pressure bearing according to Claim 1, wherein the liquid level of the oil in the first vacuum chamber is placed at a position higher than the fluid dynamic pressure bearing, when at least the oil is supplied to the fluid dynamic pressure bearing.

[c6] 6. A manufacturing method of a fluid dynamic pressure bearing according to Claim 2, wherein the liquid level of the oil in the first vacuum chamber is placed at a position higher than the fluid dynamic pressure bearing,

when at least the oil is supplied to the fluid dynamic pressure bearing.

[c7] 7. A manufacturing method of a fluid dynamic pressure bearing according to Claim 3, wherein the liquid level of the oil in the first vacuum chamber is placed at a position higher than the fluid dynamic pressure bearing, when at least the oil is supplied to the fluid dynamic pressure bearing.

[c8] 8. A manufacturing method of a fluid dynamic pressure bearing according to Claim 4, wherein the liquid level of the oil in the first vacuum chamber is placed at a position higher than the fluid dynamic pressure bearing, when at least the oil is supplied to the fluid dynamic pressure bearing.

[c9] 9. A manufacturing method of a fluid dynamic pressure bearing according to Claim 1, wherein the oil is degassed by being dripped into the pressure-reduced first vacuum chamber.

[c10] 10. A manufacturing method of a fluid dynamic pressure bearing according to Claim 2, wherein the oil is degassed by being dripped into the pressure-reduced first vacuum chamber.

[c11] 11. A manufacturing method of a fluid dynamic pressure

bearing according to Claim 1, wherein the reduced pressure level in the second vacuum chamber is not more than 1000 Pa.

[c12] 12. A manufacturing method of a fluid dynamic pressure bearing according to Claim 2, wherein the reduced pressure level in the second vacuum chamber is not more than 1000 Pa.